SureFire SLR Operators Manual

(230/480 Three Phase models, for SLR systems)

For oil or fluid grease • Document Number: 35140-E • Revision: 05-2006

B262E r2 (05-06)

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General

Before installing this lubricator, please read this manual carefully. Failure to follow these instructions can result in damage to the product and/or serious bodily injury. The SureFire SLR lubricator meets all of the operating parameters for Bijur Single Line Resistance (SLR) centralized lubricating systems.

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Application

This SureFire SLR lubricator is ideally suited for use in single-line centralized lubrication systems. In these systems, lubricant is being delivered in pulses and under pressure (pressure and relief cycles) through the main feed lines to resistance fittings (metering units and control units) located near the lube points of the machinery being lubricated. Every use beyond this type of application is not in accordance with the manufacturers' intended purpose, and the manufacturer is not to be held responsible for any damages resulting from it. The corresponding risk is taken by the user only.

Safety

This Operators Manual covers fundamental concepts, which are to be observed for installation, operation and maintenance. Therefore, it is absolutely necessary that the Operators Manual be studied by the person doing the installation prior to installation and start-up. It is also necessary to have this Operators Manual nearby and available for reference in the future. The safety instructions mentioned in this Operators Manual, as well as all national operating and safety regulations for the safe operation of such equipment are to be observed.

Precautions and symbols

General precautions and symbols used within this manual are as follows:

General safety instructions	
Electrical safety instructions	
Safety instructions which shall be considered for reasons of safe operation of the lubricator	**ATTENTION**
Electrical connections made to Earth ground are identified by this symbol	
Electrical connections made to the Neutral conductor are identified with a capital "N"	**N**
Conditions and actions that pose potential hazards to the user are marked by this sign	**WARNING**

All safety and/or warning labels affixed to the SureFire SLR lubricator must be maintained in a completely legible condition. Also, any modifications made to the SureFire SLR lubricator (or to any of its components) must be approved by Bijur Lubricating Corp. prior to its use, otherwise the warrantee and any liability by Bijur Lubricating Corp. will be null and void.

Design and Construction

The basic design of the SureFire SLR lubricator is that of a motor driven gear pump, which sits in a reservoir of lubricant. The motor, gear pump and connecting driveshaft are assembled as a self-contained unit and are "dropped into" the reservoir through a hole in the main structural component, the Top Plate.

Installing the motor and pump assembly into the reservoir from the top provides easy access to all of the motor and pump components, including the screen (if applicable) without having to dis-assemble the reservoir. If detaching the reservoir from the Top Plate is necessary, it can be done easily and without any tools on all models other than the 12 liter models, by loosening the external latches that are located on either side of the lubricator. On all models other than the 12 liter models, the Top Plate is mounted to the customer equipment by means of two bolts, and also provides the mounting locations for all of the other lubricator components. The 12 liter models are supported from the bottom.

The motor, pump and driveshaft assembly delivers pressurized lubricant directly into a channel in the downspout. This channel is sealed by means of O-Rings, and gives the downspout two integral outlet ports, one located at each end. Therefore, the customer may connect the main line plumbing distribution network to either side of the downspout, or to both sides, whichever is more convenient or aesthetically pleasing.

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Principle of Operation

The SureFire SLR lubricator has a three-phase motor-driven pump that pulls lubricant in from the reservoir and delivers pressurized lubricant to the distribution network through the outlet(s) in the top block under the motor. Pressurizing the distribution network forces all of the resistance fittings in the system to discharge the lubricant to the friction points.

As the resistance fittings discharge, the pressure in the network continues to rise until the limit in the pressure switch is reached (pressure switch sold separately). Once this limit is reached, the pressure switch can be used to stop the motor, and momentary pressure in the distribution network becomes greater than the pressure at the outlet side of the gear pump. This pressure differential actuates a quick dump valve which relieves the distribution line pressure back into the reservoir

Technical Specifications

Output Volume: 500cc/min @ 60 Hz (415cc/min @ 50 Hz)
200cc/min @ 60 Hz (167cc/min @ 50 Hz)

Output Pressure (MAX.): 75 psi (5 bar). This is the pressure relief valve setting.

Lubricant Viscosity: Oil, 20-1500 cp, Fluid greases, NLGI 000-00, 1500-40,000 cp

Reservoir Fill Screen: 40 mesh, removable

Reservoir Volume: 1.8 Liters, 2.7 Liters, 6.0 Liters, 12.0 Liters

Reservoir Material: Clear ABS plastic (12.0 Liter reservoir is steel)

Output Connection to Distribution: G1/4 BSPP (minimum 6MM OD main distribution line tubing recommended)

Motor Voltage Options: 230/415 50 Hz, 260/480 60 Hz
Motor Overload Protection needs to be provided by the host machine and/or its control system.

Motor Duty Cycle: S1 (Continuous Duty).

Operating Temperature Range: +5°C through +40°C (+40°F through +105°F)

IP Rating: IP-54

Sound Pressure: 70 dBA

Dry Weights

SF2LxDx: 11.0 lbs/4.99 Kg
SF3LxDx: 14.0 lbs/6.35 Kg
SF6LxDx: 17.5 lbs/7.94 Kg
SF12LxDx: 22.25 lbs/10.1 Kg

Current Draw and Power Consumption

Rated Voltage (+/- 10%)	230/480VAC (50/60 Hz, 3 Phase)
Peak Starting Current (amps)	0.8/0.5
Normal Running Current (amps)	0.5/0.4
Max. Current locked rotor (amps)	1.84/1.6

NOTE: 1) Peak and Starting Currents were measured with 40,000cp fluid at 450 psi. output pressure. 2) Discharge flows were measured with 0 psi output pressure.

WARNING **The SureFire SLR lubricator must not be used in explosive atmospheres and must not be used for pumping flammable liquids**.

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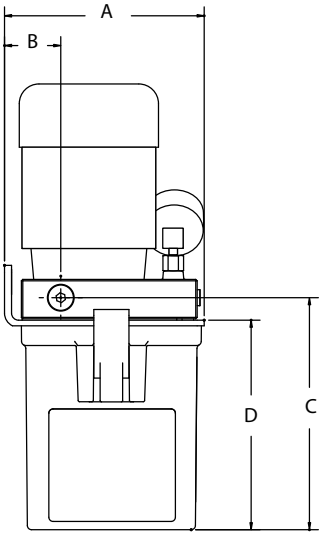
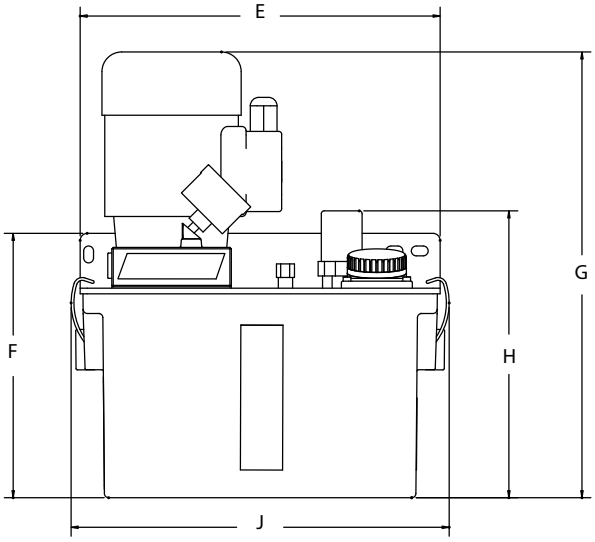
SureFire SLR 1.8L, 2.7L & 6.0L (three phase model)

English *(all dimensions are in millimeters)*
Español *(todas las dimensiones estan en milímetros)*
Deutsch *(alle Abmessungen in Millimeter)*
Français *(toutes les dimensions sont en millimètres)*

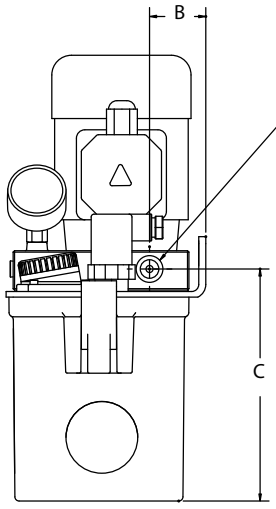


English Left view
Español Vista lado Izquierdo
Deutsch Ansicht linke Seite
Français Vue du côté gauche



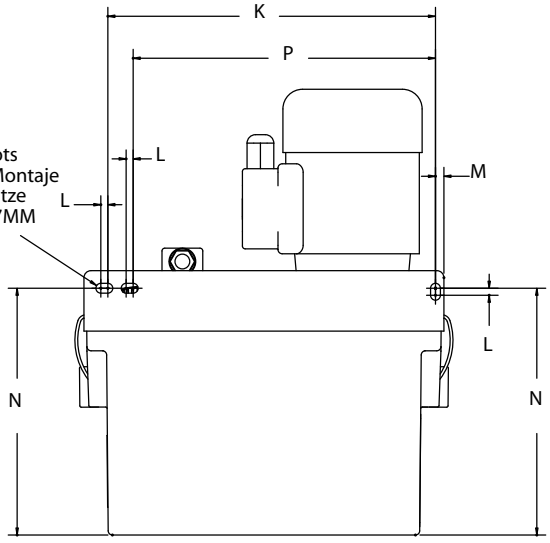
English Front view
Español Vista frontal
Deutsch Vorderansicht
Français Vue de face

English (2) G1/4 BSPP female outlets
(1) each side
Español (2) Salidas hembras G1/4 BSPP
(1) cada lado
Deutsch (2) G1/4 BSPP Ölausgang
(1) jede Seite
Français (2) Sorties femelles G1/4 BSPP
(1) de chaque côté



English Right view
Español Vista del lado derecho
Deutsch Rechte Seite
Français Vue du côté droit

English (2) Ø7MM mounting slots
Español (2) Ø7MM Ranuras de Montaje
Deutsch (2) Ø7MM Montageschlitze
Français (2) Fentes de support 07MM



English Back view
Español Vista de atrás
Deutsch Rückansicht
Français Vue arrière

SureFire SLR	A	B	C	D	E	F	G	H	J	K	L	M	N	P
1.8L	135	36	163	149	170	188	315	202	183	153	5	6	175.5	N/A
2.7L	144	45	163	149	256	188	315	202	269	233	5	6	175.5	215
6.0L	190	48	196	182	290	221	348	237	303	220	5	35	209	N/A

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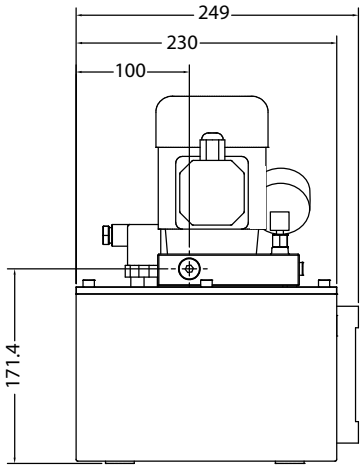
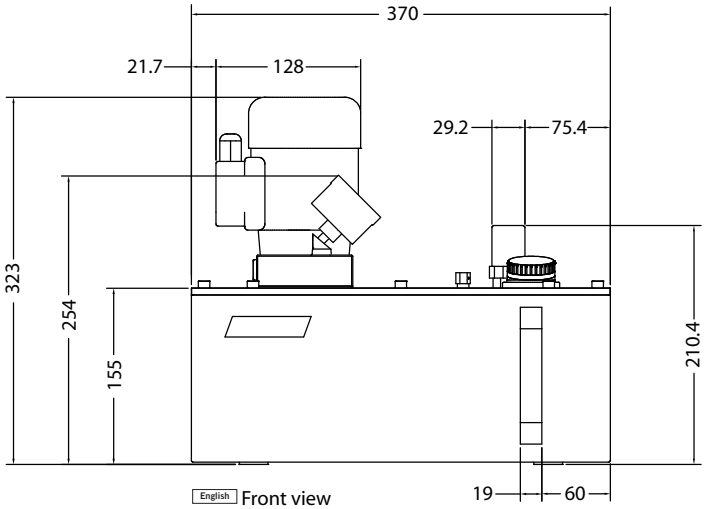
SureFire SLR 12.OL (three phase model)

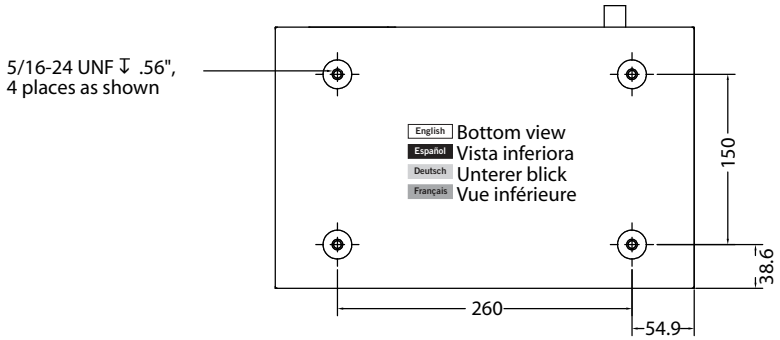
English *(all dimensions are in millimeters)*
Español *(todas las dimensiones estan en milímetros)*
Deutsch *(alle Abmessungen in Millimeter)*
Français *(toutes les dimensions sont en millimètres)*



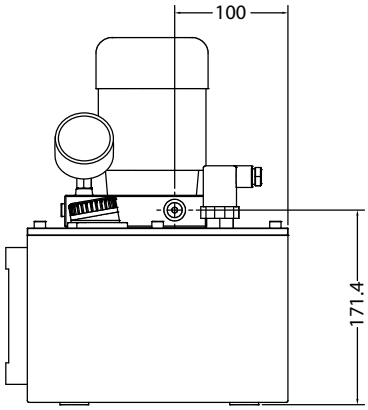
English Left view
Español Vista lado Izquierdo
Deutsch Ansicht linke Seite
Français Vue du côté gauche



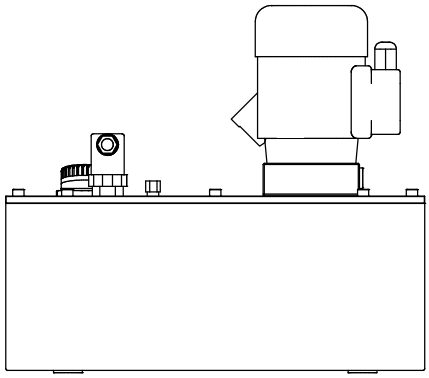
English Front view
Español Vista frontal
Deutsch Vorderansicht
Français Vue de face



English Bottom view
Español Vista inferiora
Deutsch Unterer blick
Français Vue inférieure



English Right view
Español Vista del lado derecho
Deutsch Rechte Seite
Français Vue du côté droit



English Back view
Español Vista de atrás
Deutsch Rückansicht
Français Vue arrière

Wiring and Hydraulic Diagrams

English Grease level switch wiring | Español Interruptor de nivel de grasa conexionado | Deutsch Schmierstoff Installationsschalter | Français L'installation éléctrique de commutateur de niveau graisser

ENG Level switch (N.O)
ESP Interruptor de nivel (N.A)
DE Füllstandschalter (N.O)
FR Commutateur de niveau (N.O)

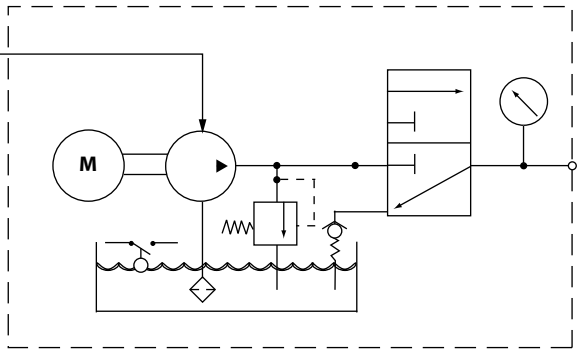
10.....30VDC (+)
Output (+) 200mA
10.....30VDC (-)

Brown/ Marrón/ Braun/ Brun
Black/ Negro/ Schwarzes/ Noir
Blue/ Azul/ Blau/ Bleu

L+
L-

English Hydraulic Diagram | Español Esquema hidraulico | Deutsch Hydraulikschema | Français Diagramme Hydraulique

English Pump
Español Bomba
Deutsch Pumpe
Français Pompe



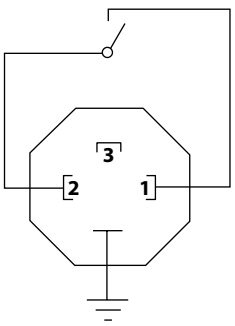
English Motor wiring | Español Conexion eléctrico | Deutsch Motor Spannung | Français Installation éléctrique de moteur

English **Oil level switch DIN (N.O.)**

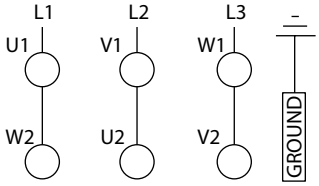
Español **Interruptor de nivel para aceite DIN**

Deutsch **Ölstandschalter DIN**

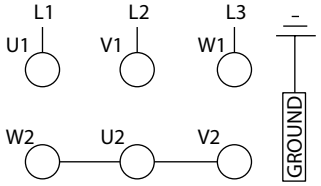
Français **Huiler le commutateur égal DIN**



230-280 Volt



400-480 Volt



Incoming voltage legs and ground = **L1**
L2
L3
GROUND

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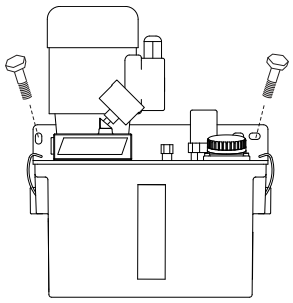
ATTENTION

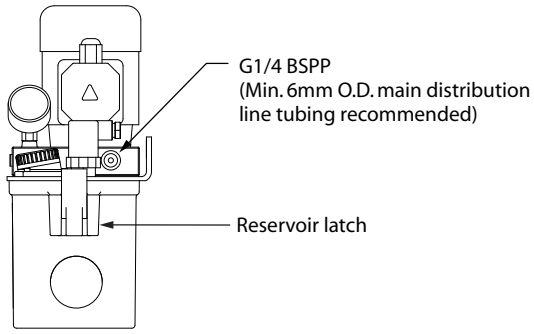


Install the SureFire SLR Lubricator in the horizontal position ONLY. Attach the lubricator in the desired location and to the desired equipment by means of an appropriately sized bolt through each of the (2) mounting holes in the top plate. For the 1.8 and 2.7 liter models, use (2) M6 bolts. For the 6.0 liter models, use (2) M8 bolts. For the 12.0 liter models, support the reservoir from the bottom.

Reservoir size	Hortizontal distance between mounting bolts	Use bolt
1.8	153MM +5/-0	M6
2.7	215MM +5/-0, 233MM +5/-0	M6
6.0	220MM +5/-0	M8
12.0	——	——

The lubricator should be installed in a location that is easy to access, for purposes of viewing the front panels, for ease of reservoir-filling, for ease of service and for ease of attachment to the distribution network plumbing.

Remember the SureFire SLR allows attachment of distribution plumbing to either (or both) sides of the top block. If only one side is used, be sure to plug the unused outlet with a G1/4 BSPP plug (one such plug is included with each lubricator). Also, the reservoir on the 1.8L, 2.7L and 6.0L models can be easily removed by loosening the latches located on ether side of the lubricator. However, to successfully do this, be sure to leave enough clearance underneath the lubricator to allow for the reservoir to be dropped down appropriately.



Right view

One liquid tight fitting is supplied with the lubricator. Use the liquid tight fitting to secure the electrical wiring for the motor and to prevent ingress of fluids or dirt into the motor compartment. A sealed electrical connector to the DIN43650 standard is supplied with the oil low level switch.

All tubing, flexible hoses and fittings must be compatible with the lubricant, operating pressure and surrounding environment. In general, try to install the lubricator in the lowest position (vertically) with relation to the rest of the distribution network and do not allow the tubing to rise and fall when avoiding obstacles. This is in case air enters the distribution lines, the bubbles will tend to rise towards the end of the distribution lines and not get caught anywhere along the way.

ATTENTION All electrical connections are to be made by a qualified technician and all local electrical codes are to be followed. When electrical connections are being made, do so before the power leads are connected and before the power is supplied.

Consult the wiring diagram (located under the motor cover or in this manual) for the correct wiring for your SureFire SLR lubricator.

ATTENTION The installation should include a means of disconnecting the power supply for servicing. Such means shall allow for switching off the power during normal operation and/or in an emergency. Also, a residual current device is required to automatically disconnect the power supply in the event of a failure in basic insulation.

Be sure that all plumbing distribution lines are clean, are not kinked and are free from any chips or any other impurities.

WARNING Fill the reservoir through the fill cap and/or fill cap strainer with clean lubricant specified by the Original Equipment Manufacturer and that meets all of the lubricant specifications listed below.

Lubricant viscosity
Oil, 20–1500 cp
Fluid grease, NLGI 000 to 00, 1500–40,000 cp

WARNING Do not overfill the reservoir. Never fill past the "MAX" level as noted on the reservoir.

Pump priming

Filling the reservoir and turning on the lubricator is usually enough to prime the pump. However, in the case of a very thick lubricant, sometimes it's necessary to assist priming the pump. Upon initial startup, if no lubricant is being delivered to the pump outlet, make sure the pump is primed.

Avoid all kinds of impurities as dirt particles are the most common cause of gear pump failure. If you wish to determine whether the lubricant you plan on using is approved for use with Bijur Lubricating Systems, you can consult the Customer Service Department.

To prime the distribution network, plumb the entire system (mainline tubing, manifolds, junctions, air/oil blocks, resistance fitting, resistance fitting outlet tubing to bearing points, etc.). Then, remove a plug or injector at the point furthest away from the pump. Now, run the pump until bubble-free lubricant flows from this point. Replace the plug or last resistance fitting.

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Maintenance and Service

The SureFire SLR lubricator does not require much maintenance. After initial set-up, the lubricator requires only the following maintenance:

a) When filling the reservoir with oil, the lubricant must be poured through the oil-filler screen

b) The oil-filler screen must be inspected after every 4 or 5 fillings and cleaned if necessary

c) If filling with a fluid grease, due to the fact that SureFire SLR fluid grease models omit the filter screens, be sure the grease is fresh, clean, and is not higher than 40,000 cp viscosity.

d) Do not use aggressive cleaners to clean the lubricator. Use only mild cleaners or degreasers to clean the lubricator.

Troubleshooting

Premature wear of the gear pump and the other moving parts is usually caused by dirty or contaminated lubricant.

Failure of the SLR resistance fittings to deliver lubricant can be caused by an incorrect commissioning sequence, resulting in either air or dirt being trapped in the distribution network.

If you have any questions and need technical assistance, our Customer Service number is: **1-800-631-0168**

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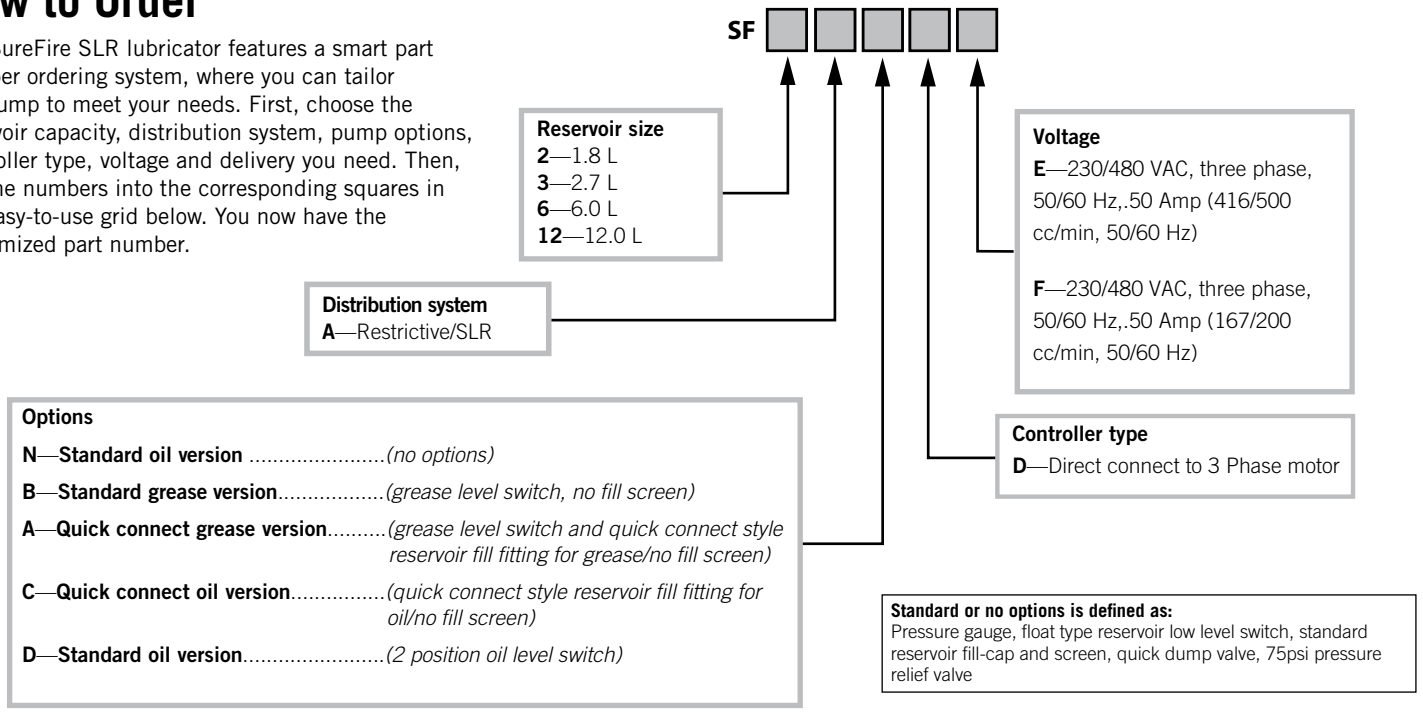
Spare Parts

SureFire SLR MODEL NUMBER	SF2AxDx	SF3AxDx	SF6AxDx	SF12AxDx	
Part Description	**PART #**	**PART #**	**PART #**	**PART #**	
Reservoir	34794	34795	34796	Reservoir Assembly	35153
Reservoir O-Ring				Reservoir Gasket	
Reservoir Clasp				Bolts	
Reservoir Clasp Plate				Washers	
Reservoir Clasp Plate Screws					
Level Switch (oil)	34797		34798		
Level Switch (grease)	23470				
2 position Level Switch (for oil)	39161-4793				
Pressure Gauge	24541				
Reservoir Inlet Strainer Assembly (w/screws)	35150				
Automotive Quick Connector Assembly - for grease applications (with O-Ring)	35151				
Automotive Quick Connector Assembly - for oil applications (with O-Ring)	35152				
Motor	35159				
Mounting Screws					

How to Order

The SureFire SLR lubricator features a smart part number ordering system, where you can tailor the pump to meet your needs. First, choose the reservoir capacity, distribution system, pump options, controller type, voltage and delivery you need. Then, put the numbers into the corresponding squares in the easy-to-use grid below. You now have the customized part number.


SF
Reservoir size
2—1.8 L
3—2.7 L
6—6.0 L
12—12.0 L
Distribution system
A—Restrictive/SLR
Voltage
E—230/480 VAC, three phase, 50/60 Hz,.50 Amp (416/500 cc/min, 50/60 Hz)
F—230/480 VAC, three phase, 50/60 Hz,.50 Amp (167/200 cc/min, 50/60 Hz)
Controller type
D—Direct connect to 3 Phase motor
Options
N—Standard oil version .....(no options)
B—Standard grease version.....(grease level switch, no fill screen)
A—Quick connect grease version.....(grease level switch and quick connect style reservoir fill fitting for grease/no fill screen)
C—Quick connect oil version.....(quick connect style reservoir fill fitting for oil/no fill screen)
D—Standard oil version.....(2 position oil level switch)
Standard or no options is defined as:
Pressure gauge, float type reservoir low level switch, standard reservoir fill-cap and screen, quick dump valve, 75psi pressure relief valve

Example SF | 3 | A | A | D | E

To order a SureFire SLR 2.7L reservoir for an SLR distribution system, with a snap-on grease connector, terminal block connections that runs on 230/480VAC three-phase power with a 500cc/min delivery, you would use part number SF3AADE.

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Notes

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INTERNATIONAL

BIJUR®

ISO 9001:2000 QUALITY CERTIFIED

ISO 14001:2004 QUALITY CERTIFIED

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